

REMARKS

Reconsideration and allowance of this application are respectfully requested. Claims 1, 29, 30 and 32 have been amended. Claims 1, 2, 5-33 and 36-59 are pending in the application. The rejections are respectfully submitted to be obviated in view of the amendments and remarks presented herein.

Rejection of Claims 1, 2, 5-28, 32, 33 and 36-59

Claims 1, 2, 5-28, 32, 33 and 36-59 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ludwig et al. (U.S. Patent Number 6,697,352; hereinafter “Ludwig”) in view of Zhu (U.S. Patent Number 6,154,780) and Ashwood Smith (U.S. Patent Number 6,839,322). The rejection is respectfully traversed.

Regarding claims 1, 2, 32 and 33, the claimed invention relates to a method of transmitting a bit stream in a communication network. Source data is coded into the bit stream using a predetermined type of coding. A header is added from each communication protocol layer to a payload while transmitting the coded bit stream to each communication protocol layer. The header is transmitted separately from the transmitted bit stream, as recited in claims 1 and 32. Similarly, claims 2 and 33 recite “separately transmitting the payload and the header.” Additionally, claims 1 and 32 recite that “a bit stream, to which header information has been added by undergoing each communication protocol layer, is transmitted in an unacknowledged mode protocol, and only the header information in the bit stream is separately transmitted in an acknowledged mode protocol.” Similarly, claims 2 and 33 recite that “a payload in a bit stream, which has passed through each communication protocol layer, is transmitted in an

unacknowledged mode protocol, and the header information is separately transmitted in an acknowledged mode protocol.”

Turning to Ludwig, the concept of encapsulation, whereby a packet of a higher layer is embedded in a larger packet of a lower layer, is shown in Figure 5. Data is passed through layers of protocol, whereby the resulting packet is a frame with headers added at each layer. However, Ludwig does not teach or suggest transmitting only header information separately in an acknowledged mode, and also transmitting a bit stream with added header information or a payload in a bit stream in an unacknowledged mode protocol, as recited in the claims.

Ludwig only discloses the concept of encapsulation whereby a frame is formed by adding headers at each layer. Ludwig’s TCP packets are transmitted only in numbered channels, and UDP packets are transmitted only in unnumbered channels (column 7, lines 43-48 and column 14, lines 62-65). These packets in Ludwig include both header and data, and header information is never separately transmitted in an acknowledged mode protocol in Ludwig (column 2, lines 10-32). Additionally, Examiner readily admits that Ludwig also fails to disclose coding source data into the bit stream using a predetermined type of coding.

There is also no *implicit* disclosure in Ludwig of transmitting the header information separately in an acknowledged mode. The claimed invention recites that “only header information in the bit stream is separately transmitted in an acknowledged mode protocol,” as recited in claims 1 and 32, and that “header information is separately transmitted in an acknowledged mode protocol,” as recited in claims 2 and 33. Although the Examiner contends that Ludwig’s header information may be transmitted in an acknowledged mode protocol, there

is no teaching or suggestion in Ludwig of the separate transmission of the header information in an acknowledged mode protocol as recited by claims 1, 2, 32 and 33 respectively.

Zhu does not remedy the deficiencies of Ludwig. Zhu also does not teach or suggest at least the separate transmission of header information in an acknowledged mode protocol, as recited in the claims. There is no disclosure in Zhu of separately transmitting the header and the bit stream/payload, as claimed. Zhu teaches real-time transmission of coded digital video signals and segmentation of a digital video bitstream into transport protocol packets (column 1, lines 16-32). Encapsulation is performed using an encoded digital video bitstream (column 1, lines 33-34). However, Examiner also admits that “both Ludwig and Zhu do not disclose transmitting the header separately from the bit stream transmitted in the step of adding a header from each communication protocol layer to a payload while transmitting the bit stream coded from a coding source data.”

Examiner maintains that the combination of Ludwig in view of Zhu and Ashwood Smith render the claimed invention obvious. However, Ashwood Smith also does not teach the transmission of header information separately in an acknowledged mode protocol, as recited in the claims. Ashwood Smith discloses routing of packet data across a wave division multiplex communications network having a plurality of data communications channels. “Each block (18, 20) of the frame 16 is transported across the network 2 on a respective channel (wavelength). Thus, the label block 18 is transported on a respective label channel, and each payload block 20 is transported on a respective payload channel” (column 5, lines 46-54). Although a label channel is used in Ashwood Smith, there is still no mention of specifically transmitting the

header information separately in an acknowledged mode protocol, as claimed. At least by virtue of the aforementioned differences, the invention defined by claims 1, 2, 32 and 33 are patentable over Ludwig in view of Zhu and Ashwood Smith. Claims {5, 7, 9-11, 13, 15, 17, 19, 21, 23-25, and 27}, {6, 8, 12, 14, 16, 18, 20, 22, 26 and 28}, {36, 38, 40-42, 44, 46, 48, 50, 52, 54-56 and 58} and {37, 39, 43, 45, 47, 49, 51, 53, 57 and 59} are dependent claims including all of the elements of independent claims 1, 2, 32 and 33, respectively, which, as established above, distinguish over Ludwig in view of Zhu and Ashwood Smith. Therefore, claims 5-28 and 36-59 are patentably distinguished over Ludwig in view of Zhu and Ashwood Smith for at least the aforementioned reasons as well as for their additionally recited features. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

Rejection of Claims 29, 30 and 31

Claims 29, 30 and 31 are again rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ludwig in view of Zhu. The rejection is respectfully traversed.

Regarding claim 29, the combination of Ludwig and Zhu does not disclose every element of the claim. The claimed invention recites “a packet processing unit for transmitting the bit stream processed by the protocol processing unit in an unacknowledged mode protocol and separately transmitting only header information in an unacknowledged or acknowledged mode protocol” (emphasis added). However, even though Ludwig mentions sending UDP packets in an unnumbered mode and TCP packets in a numbered mode, whereby the UDP does not provide for retransmission of corrupted packets, there is still no mention in Ludwig or Zhu of transmitting the bit stream in an unacknowledged mode protocol, and separately transmitting

only header information in an unacknowledged or acknowledged mode protocol, as claimed.

Ludwig's communication only sends packets *already designated* as UDP or TCP by their respective reliability modes (column 6, lines 9-45).

The Examiner contends that Ludwig discloses *implicitly* that the bit stream is transmitted in an unacknowledged mode protocol and the header information is transmitted in an unacknowledged or acknowledged mode protocol (page 7 of the Office Action). However, although Ludwig leaves open the possibility of transmitting UDP packets and TCP packets in numbered/unnumbered modes, Ludwig still fails to teach or suggest **the explicitly claimed elements** of transmitting the bit stream and the header information which are recited to each be transmitted by particularly claimed mode protocols (acknowledged/unacknowledged). Although packets along with included headers may be transmitted *based on their designation* of UDP/TCP, Ludwig does not separately deal with the individual transmission of bit stream and header information in respective mode protocols, whereby the header information is separately transmitted. At least by virtue of the aforementioned differences, the invention defined by claim 29 is patentable over Ludwig in view of Zhu.

Regarding claim 30, the combination of Ludwig and Zhu does not disclose every element of the claim. The claimed invention recites “an extractor for separately extracting payloads and header information which corresponds to the header of each layer, while receiving a bit stream and a header information received in an acknowledged or unacknowledged mode protocol in the communication network to each layer.” As discussed above, Ludwig does not teach transmitting the bit stream in an unacknowledged mode protocol, and *separately* transmitting

only header information in an unacknowledged or acknowledged mode protocol. Thus, Ludwig is also incapable of, and further does not separately extract payloads and header information while receiving a bit stream and a header information received in an acknowledged or unacknowledged mode protocol, as claimed. Ludwig's discrimination of received packets is accomplished according to rules of particular classifications determined by checking individual headers. **However, the headers are not transmitted separate from the bit stream.**

The Examiner contends that Ludwig discloses an extractor for separately extracting payloads and header information which corresponds to the header of each layer, while transmitting a bit stream received in a separate transmission protocol in the communication network to each layer (page 8 of the Office Action). However, Ludwig in Fig. 5, column 2, lines 33-36 and column 11, lines 5-20 only discloses that headers and trailers added by protocols to data is extracted on a receiving side *by a process of de-encapsulation*. There is no teaching or suggestion in Ludwig of an extractor which separately extracts payloads and header information which corresponds to the header of each layer while receiving a bit stream and a header information received in an acknowledged or unacknowledged mode protocol in the communication network to each layer, as claimed. Although Ludwig mentions de-encapsulation, Ludwig still fails to teach or suggest all of the elements of the claimed invention, and in particular the processes of the extractor which separately extracts payloads and header information while receiving a bit stream and header information in an acknowledged or unacknowledged mode protocol, as recited in claim 30.

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
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At least by virtue of the aforementioned differences, the invention defined by claim 30 is patentable over Ludwig in view of Zhu. Claim 31 is a dependent claim including all of the elements of independent claim 30, which as established above, patentably distinguishes over Ludwig in view of Zhu. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

In view of the above, Applicants assert that independent claims 1, 2, 29, 30, 32 and 33, as well as dependent claims 5-28, 31 and 36-59, would not have been rendered obvious in view of the combined references.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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